

WHAT IS CLAIMED IS:

1. A method of forming a gelled organic-based fluid, comprising:
- 5 combining at least one organic base fluid with a solid reaction product of at least one carboxylic acid and at least one first metal source compound to form said gelled organic fluid.
- 10 2. The method of claim 1, wherein said combining further comprises combining at least one MSMA-based compound with said organic base fluid, said solid reaction product, and said first metal source compound to form said gelled organic fluid.
- 15 3. The method of claim 1, wherein said metal of said first metal source has a valence of +3.
- 20 4. The method of claim 3, wherein said first metal source compound comprises at least one of carboxylic acid salt, metal oxide, metal halide, metal hydroxide, metal alkoxide, metal sulfate, and wherein said metal of said first metal source compound is aluminum, iron, or a mixture thereof.
- 25 5. The method of claim 1, wherein said combining further comprises combining a second metal source compound with said organic base fluid and said solid reaction product.

6. The method of claim 5, wherein said metal of said first metal source has a valence of +3; and wherein said metal of said second metal source has a valence of +3.

5 7. The method of claim 6, wherein said first metal source compound comprises salt of carboxylic acid; wherein said second metal source compound comprises at least one of metal oxide, metal halide, metal hydroxide, metal alkoxide, metal sulfate or a mixture thereof; and wherein said metal of said first and second metal source compounds is aluminum, iron, or a mixture thereof.

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8. The method of claim 1, wherein said solid reaction product comprises a reaction product of at least one carboxylic acid, said first metal source compound and a second metal source compound.

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9. A method of forming and using a gelled organic-based fluid, comprising:

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combining at least one organic base fluid, at least one carboxylic acid, at least one first metal source compound, and at least one second metal source compound to form said gelled organic fluid; and

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introducing said gelled organic fluid into a wellbore, pipeline interior or fluid processing facility;

wherein said first and second metal source compounds are different compounds; and

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wherein said metal of said first metal source has a valence of +3; and wherein said metal of said second metal source has a valence of +3.

10. The method of claim 9, wherein said combining further comprises combining at least one MSMA-based compound with said organic base fluid, said solid reaction product, and said first metal source compound to form said gelled organic fluid.
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11. The method of claim 9, wherein said first metal source compound comprises salt of carboxylic acid; wherein said second metal source compound comprises at least one of metal oxide, metal hydroxide, metal halide, metal alkoxide, metal sulfate or a mixture thereof; and wherein said metal of said first and second metal source compounds is
- 10 aluminum, iron, or a mixture thereof.
12. The method of claim 9, wherein said carboxylic acid comprises at least one fatty acid having from about 6 to about 24 carbon atoms; wherein said carboxylic acid salt comprises aluminum octoate, aluminum stearate, iron octoate, aluminum 2,4-pentadione, iron 2,4-pentadione, or a mixture thereof; and wherein said second metal source compound comprises at least one of aluminum oxide, iron hydroxide, aluminum hydroxide, aluminum isopropoxide, aluminum chloride, ferric ammonium sulfate, or a mixture thereof.
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13. The method of any of claim 12, further comprising combining with said organic base fluid a breaker material.
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14. The method of any of claim 13, wherein said gelled organic-based fluid is introduced into a wellbore, a pipeline interior, or a fluid processing facility.

15. The method of claim 13, wherein said gelled organic-based fluid is introduced into a subterranean formation at a pressure above a fracturing pressure of said subterranean formation

16. A method of forming a gelled organic-based fluid, comprising combining the following components to form said gelled organic fluid:

at least one organic base fluid;

at least one MSMA-based compound; and

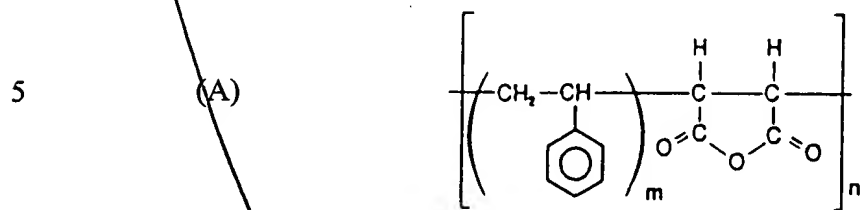
at least one first metal source compound.

17. The method of claim 16, wherein said combining comprises first combining said MSMA-based compound and said first metal source compound to form a reaction product; and then combining said reaction product with said organic base fluid to form said gelled organic-based fluid.

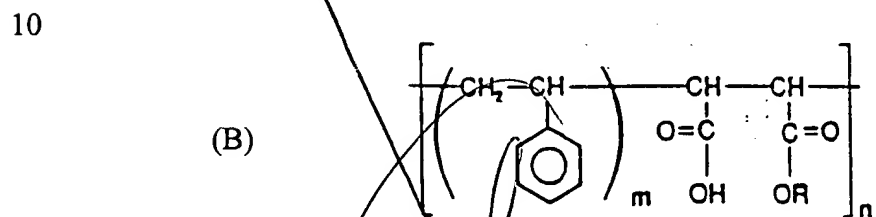
18. The method of claim 17, wherein said metal of said first metal source compound has a valence of +3.

19. The method of claim 18, wherein said reaction product comprises the reaction product of at least one carboxylic acid, said at least one MSMA-based compound, and said at least one first metal source compound.

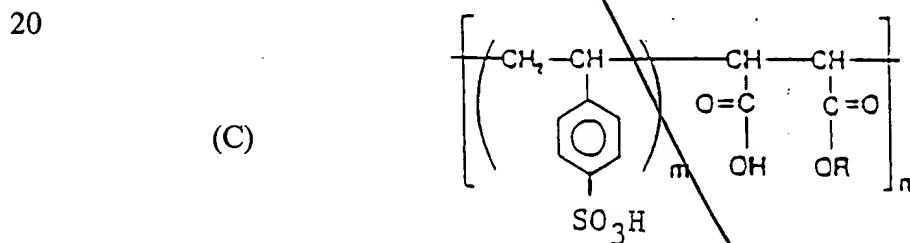
20. The method of claim 19, wherein said MSMA-based compound has at least one of the following structures, or a mixture thereof:



wherein m = from about 1 to about 3; and n = from about 6 to about 8;



15 wherein m = from about 1 to about 3; n = from about 6 to about 8; and ROH represents a fatty alcohol in which R is a branched or straight carbon chain that may be saturated or unsaturated, and which has from about 8 to about 20 carbon atoms; or



25 wherein m = from about 1 to about 3; n = from about 6 to about 8; and ROH represents a fatty alcohol in which R is a branched or straight carbon chain that may be saturated or unsaturated, and which has from about 8 to about 20 carbon atoms.

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21. The method of claim 20, wherein said first metal source compound comprises at least one of carboxylic acid salt, metal oxide, metal halide, metal hydroxide, metal alkoxide, metal sulfate, or mixture thereof; and wherein said metal of said first metal source compound is aluminum, iron, or a mixture thereof.

22. The method of claim 20, wherein said combining further comprises combining a second metal source compound with said organic base fluid, said at least one MSMA-based compound, and said at least one first metal source compound.

23. The method of claim 22, wherein said first metal source compound comprises salt of carboxylic acid; and wherein said second metal source compound comprises at least one of metal oxide, metal halide, metal hydroxide, metal alkoxide, metal sulfate or a mixture thereof; and wherein said metal of said first and second metal source compounds is aluminum, iron, or a mixture thereof.

24. The method of claim 19, wherein said carboxylic acid comprises at least one fatty acid having from about 6 to about 24 carbon atoms; and wherein said first metal source compound comprises aluminum octoate, aluminum stearate, iron octoate, aluminum 2,4-pentadione, iron 2,4-pentadione, aluminum oxide, iron hydroxide, aluminum hydroxide, aluminum isopropoxide, aluminum chloride, sodium hydroxide, ferric ammonium sulfate, or a mixture thereof.

25. The method of claim 23, wherein said carboxylic acid comprises at least one fatty acid having from about 6 to about 24 carbon atoms; wherein said carboxylic acid salt comprises aluminum octoate, aluminum stearate, iron octoate, aluminum 2,4-pentadione,

iron 2,4-pentadione, or a mixture thereof; and wherein said second metal source compound comprises at least one of aluminum oxide, iron hydroxide, aluminum hydroxide, aluminum isopropoxide, aluminum chloride, sodium hydroxide, ferric ammonium sulfate, or a mixture thereof.

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26. The method of claim 17, wherein said combining further comprises combining at least one phosphate ester with said other components to form said gelled organic fluid.

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27. The method of claim 17, further comprising combining with said organic base fluid a breaker material.

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28. The method of claim 17, further comprising introducing said gelled organic-based fluid into a wellbore, a pipeline interior, or a fluid processing facility.

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29. The method of claim 17, wherein said gelled organic-based fluid is introduced into a subterranean formation at a pressure above a fracturing pressure of said subterranean formation.

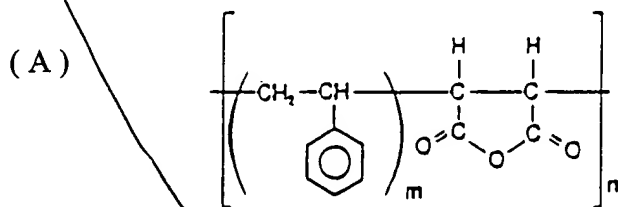
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30. A reaction product of at least one carboxylic acid, at least one metal source compound, and at least one MSMA-based compound.

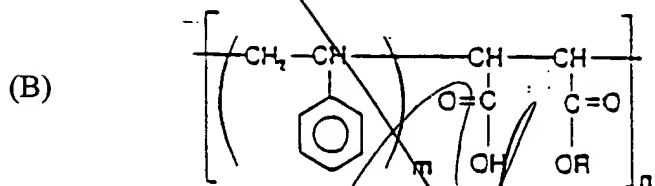
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31. The reaction product of claim 30 wherein said carboxylic acid comprises at least one fatty acid having from about 6 to about 24 carbon atoms; wherein said at least one metal source compound comprises aluminum octoate, aluminum stearate, iron octoate,

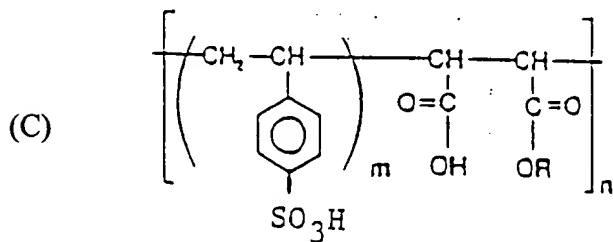
aluminum 2,4-pentadione, iron 2,4-pentadione, aluminum oxide, iron hydroxide, aluminum hydroxide, aluminum isopropoxide, aluminum chloride, ferric ammonium sulfate, or a mixture thereof; and wherein said MSMA-based compound has at least one of the following structures, or a mixture thereof:



wherein m = from about 1 to about 3; and n = from about 6 to about 8;



wherein m = from about 1 to about 3; n = from about 6 to about 8; and ROH represents a fatty alcohol in which R is a branched or straight carbon chain that may be saturated or unsaturated, and which has from about 8 to about 20 carbon atoms; or



wherein m = from about 1 to about 3; n = from about 6 to about 8; and ROH represents a fatty alcohol in which R is a branched or straight carbon chain that may be saturated or unsaturated, and which has from about 8 to about 20 carbon atoms.

32. The reaction product of claim 30, wherein said at least one metal source compound comprises a first and a second metal source compound, said first and second metal source compounds being different compounds.

33. The reaction product of claim 31, wherein said reaction product comprises a solid reaction product having a particle size of from about 100 mesh to about 325 mesh.

34. A reaction product of at least one carboxylic acid, at least one first metal source compound, and at least one second metal source compound; said first and second metal source compounds being different compounds.

35. The reaction product of claim 34 wherein said carboxylic acid comprises at least one fatty acid having from about 6 to about 24 carbon atoms; wherein said at least one first metal source compound comprises a carboxylic acid salt that is at least one of aluminum octoate, aluminum stearate, iron octoate, aluminum 2,4-pentadione, iron 2,4-pentadione, or a mixture thereof; and wherein said at least one second metal source compound comprises at least one of aluminum oxide, iron hydroxide, aluminum hydroxide, aluminum isopropoxide, aluminum chloride, ferric ammonium sulfate, or a mixture thereof.

36. The reaction product of claim 35, wherein said reaction product comprises a solid reaction product having a particle size of from about 100 mesh to about 325 mesh.

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